A Draft EA is being prepared in conjunction with this DCR to determine which aspects of the proposed project have potential for social, economic, and environmental impacts and to identify measures that will mitigate adverse impacts. This chapter provides a summary assessment of existing conditions for selected environmental elements in the immediate vicinity of the project area and presents the process to evaluate impacts. A detailed analysis of the social, economic, and environmental conditions and impacts is presented in the Draft EA, which will be available at various sites to be announced prior to the public meetings.

8.1 ENVIRONMENTAL OVERVIEW AND HISTORY

The SR 303L Corridor has been subject to several transportation studies since 1985 as noted in Section 1.4, including five separate environmental studies. The following is a brief summary of the previous environmental evaluations.

1987 – Draft Reconnaissance Report (Cotton Lane/Northwest Loop), ADOT

This report was prepared as a component of a route location study and preliminary design. Environmental issues addressed included the human environment (population, land use, community facilities), the natural environment (air, water, vegetation, wildlife, hazardous waste, agriculture) and cultural resources (historic, prehistoric). Project limits extended from State Route 85 (now MC 85) to I-17 and included the current SR 303L alignment between I-10 and US 60. The study included coordination with appropriate state agencies, as no federal funding or action was contemplated at that time no federal agency coordination occurred.

No substantive environmental issues were raised by the study. The area was sparsely populated; relatively slow growth projected, minimal natural habitat or vegetation was present and limited evidence of cultural sites occurred. In 1987 MAG projections indicated the city population by 2015 would be 39,235 (current population is over 30,848 according to the 2000 Census). The only segment of natural vegetation in the corridor (between Union Hills and Beardsley Canal) was removed to build Sun City Grand and Bell West Ranch. In summary the 1987 study concluded no there were no substantive environmental constraints in the I-10 to US 60 segment of SR 303L.

1991 – Final Environmental Assessment, Estrella Freeway State Route 303L, by ADOT

This Final Environmental Assessment (FEA) was prepared in accordance with the ADOT Action Plan Part 3.2.4 for state funded projects on the State Highway System. The project limits were identical to the 1987 Reconnaissance Report. While the 1987 effort was more qualitative, this 1991 FEA was quantitative and covered a full range of environmental issues. Again as no federal funding was anticipated no federal agency coordination occurred.

The FEA included a substantial public involvement component, including, public information meetings, newsletters, press releases and two public hearings (attended by over 300 citizens). Again as only minor land use changes and population growth occurred in the I-10 to US 60 segment no substantive environmental issues were identified. The FEA did set the alignment for SR 303L and allowed the current two-lane roadway to be constructed.

1992 – Addenda to the Final Environmental Assessment (Grand Avenue to Dysart Road), by ADOT

In 1992 the Del Webb Corporation requested ADOT amend the SR 303L alignment north of Grand Avenue (US 60) due to their pending acquisition of 880 acres known as the Sun City West Expansion Area. The addenda evaluated the relocation of an approximately 4-mile segment of SR 303L between US 60 and Dysart Road (extended) by approximately ¼ mile. With the approval of the alignment shift, Del Webb Corporation was required to provide noise abatement in the Sun City West expansion area. No construction was programmed in this segment at the time of the addenda, but served to preserve and dedicate the future right-of-way needed for a freeway facility. This realignment did not affect the intersection of SR 303L/US 60 or the alignment south of US 60.

1997 – Environmental Assessment Update (Estrella Roadway Loop 303), by MCDOT

In 1992 MCDOT agreed to assist ADOT in completing and interim two-lane facility extending from US 60 to Lake Pleasant Road. The 1997 county EA addressed this approximately 9.5 miles of construction. The project limits started just south of US 60 to include a grade-separated overpass at US 60 and continued east to Lake Pleasant Road.

The EA updated all the environmental issues relative to the 1991 ADOT FEA and 1992 ADOT Addenda. By 1997 the Sun City West expansion community was fully developed the Sun City Grand community was in the early stages of construction. A substantial public involvement program including three Information Meetings (each attended by 300-700 citizens), five Task Force Meetings (task force consisted of Sun City community representative and several presentations to the Property Owners and Recreation Association were made.

The update recommended shifting the alignment approximately 300 feet west at US 60 for the overpass. This shift away from residents benefited both engineering issues and environmental (noise, visual) issues. This project was constructed by MCDOT and opened to traffic in May 2004.

2000 – Environmental Assessment Update, State Route 303L Interim Roadway Project, by MCDOT

The development of Sun City Grand, a Master Planned community of up to 10,000 citizens, between Union Hills section line and US 60 straddling to the SR 303L corridor raised compatibility and access issues with Sun City Grand citizens, Del Webb Corporation (the builder) and the City of Surprise. The 2000 EA Update was prepared to provide baseline environmental conditions and address environmental effects associated with increased SR 303L capacity needs. Additionally, at that time Del Webb sought to partner with MCDOT to construct grade separated overpasses at Clearview Boulevard (formerly Union Hills Drive) and Mountain View Boulevard (formerly Beardsley Road). The overpasses would connect the future phase of Sun City Grand west of SR 303L to the existing phase.

The Update included a number of public meetings in Sun City Grand. The primary issues of truck traffic (Canamex traffic), noise, traffic safety (speeding, hazardous materials), air quality and property values were raised. As well as the citizens desire to relocate SR 303L or at least all truck traffic to the Sun Valley Parkway. As a result of this EA, MCDOT agreed to assist in the funding and construction of the Clearview and Mountain View overpasses, to shift the alignment slightly west away from existing homes and to partially depress the roadway profile between Clearview and Mountain View. These mitigation measures substantially reduced the potential for noise impacts in accordance with FHWA criteria. MCDOT Noise Policy is consistent with and is based on the FHWA criteria.

The resulting project from this EA Update was constructed and open to traffic in September 2002. The bridge over US 60 was completed and opened to traffic in May 2004.

8.2 LAND USE AND JURISDICTION

The SR 303L project corridor crosses the jurisdictions of Surprise, Glendale, Goodyear, and unincorporated Maricopa County. The City of Litchfield Park is just east of the corridor, as is Luke AFB. Each of the jurisdictions has current General Plans with defined Land Use Elements for current and future uses. The General Plans that cover the corridor are: Surprise General Plan 2020, Goodyear General Plan Update 2003-2013, White Tank/Grand Avenue Area Plan, Glendale 2025 The Next Step General Plan.

In general, the project corridor can be described as a rural, agricultural area, converting to suburban land uses at the north and south ends of the project (see Figure 4-1, Existing Land Use). At the north end between Cactus Road and US 60 (City of Surprise), lands are rapidly converting from agriculture to Master Planned Communities. The area features large-scale communities like Sun City Grand, Bell West Ranch, Northwest Ranch, Surprise Farms and Sierra Montana. These master planned communities include retail, commercial, recreation, and public facilities (i.e., schools, fire stations). The majority of the development has occurred in the last five years.

The south end of the project between Indian School Road and Lower Buckeye Road is currently converting to suburban uses. The conversion to suburban uses has also started in the last five years. Master Planned communities like Pebble Creek, Canyon Trails Ranch, Cotton Flower, and Sarival Gardens are replacing agricultural uses. These communities are within the City of Goodyear.

The central portion of the corridor between Cactus Road and Indian School Road is predominantly agricultural or rural subdivisions (one-acre plus lots). The presence of Luke AFB covering approximately 1,700 acres generally bounded by Northern Avenue, Litchfield Road, Bethany Home Road, and Sarival Avenue, influences the surrounding land uses.

Luke AFB is a fighter pilot training base originally built in 1941 to train World War II pilots. The base continues today to be of critical importance to the U.S. Department of Defense, State of Arizona, and Maricopa County. Luke AFB is located within the City of Glendale and is east of the project area. It has long been a priority to the region to maintain zoning and land use that is compatible with the mission of the base. The Air Force has acquired 273 acres of land surrounding the base to curb development and ensure the longevity of the base. They are also buying 1,768 acres of private property within flight corridors used by aircraft from the base. The first tracts of land began acquisition in June 2004, and the whole project is slated to be completed by 2006 (*Tucson Citizen*, 13 March 2004).

The far southern portion of project corridor between Lower Buckeye Road and the Gila River is retaining its rural, agricultural base. This is in part due to the Gila River floodplain. This segment of the project is within the City of Goodyear.

Few public facilities or land uses occur in the project corridor. The City of Surprise built Fire Station #303 at Cotton Lane and Greenway Road in 2003. Four public schools are located within one mile of the corridor: Cimarron Springs Elementary School, E-Institute Charter High School, Sonoran Heights Elementary School, and Thunderbird Elementary School.

At I-10 and Cotton Lane, the Arizona Department of Corrections Perryville Prison covers about 800 acres. No public parks or recreation areas are within 2 miles of the project corridor.

Future land uses are directed by the city or county general plans noted above. The continued conversion of agricultural lands to suburban and urban land uses is planned. The SR 303L transportation facility is a key element in each of the general plans, with development focusing on this high volume corridor (see Figure 4-3, Corridor General Plan Land Uses). Additionally, the general plans recognize the need for coordinated flood control features such as the Loop 303 Corridor/White Tanks ADMP.

8.3 SOCIAL IMPACTS

This section will identify those facilities or services that are provided in the project area to the general public. The facilities include schools, hospitals, public transportation, trails, parks, post offices, police or fire stations.

The existing facilities include: (1) Sun Valley Parkway Bike Route, which crosses SR 303L on Bell Road; and (2) Surprise Fire Station #303 at Cotton Lane and Greenway Road. There are two proposed schools in the Avondale School District Number 44 located within Sarival Gardens and Cotton Trails subdivisions, and one school under construction in the Surprise Farms community. Several public facilities that exist within the general region but outside the project area include: Estrella Mountain Regional Park (6.5 miles to the southeast), Kingswood Elementary School (1.25 miles east), Paradise Education Center (1.5 miles east), Surprise Recreation Campus (2.5 miles east), and the White Tanks Regional Park (4.5 miles west).

The nearest hospital is Del Webb Memorial about 2.5 miles south and east of the corridor. No public transit or bus service is currently on SR 303L. The nearest bus route stops 2 to 3 miles east of the corridor at Luke AFB and in Litchfield Park. The nearest police facility (Maricopa County Sheriff/City of Surprise) is over 4 miles from the corridor.

Demographic Characteristics

The project crosses nine census tracts in western Maricopa County. Census tract data, compiled by the Arizona Department of Economic Security based on the 2000 census, were evaluated to assess the demographic makeup of the project area (see Table 8-1).

Minority population in the corridor is lower than the County average. The project area census tracts range from 3.0% to 32.6% minorities, with the County average at 33.8%. The age composition is varied across the project corridor. Three census tracts, 405.5, 405.1, and 405.11, which cover the retirement communities of Sun City West, Sun City Grand, and PebbleCreek show high percentage (50.2%-83.6%) of citizens 65 and older. The county average is 11.7%. This age concentration is expected in age-restricted retirement communities. These same three census tracts have an average that is higher than the County average for citizens between the ages of 45-64 as well.

Household incomes in the corridor are generally higher than the County average ($45,350). Only tracts 405.11and 405.05 are below the County average. No census tracts approach the U.S. Department of Health and Human Services poverty guidelines of $18,400 for a family of four.

Table 8-1 Census Data for Maricopa County, Arizona, Demographic Characteristics

	Total Population	Total Household	Average Persons/ Household	Sex[a]		Income	Age Composition[a]				
				Male	Female	Median Household Income/ Family of Four	0-17	18-24	25-44	45-64	65 and Over
Maricopa County	3,072,149	1,132,886	2.67	50.1	49.9	$45,350	27.0	10.2	31.4	19.8	11.7
Goodyear Census Tract 610.04	4,309	1,311	3.11	52.8	47.2	$53,786	30.6	12.8	33.9	18.4	4.3
Goodyear Census Tract 610.05	6,458	1,955	2.21	52.1	47.9	$50,786	7.4	7.6	31.7	34.1	19.2
Goodyear Census Tract 610.09	96	31	3.10	77.1	22.9	$51,250	31.3	2.1	30.2	25.0	11.5
Unincorporated MC Tract 405.05	8,858	4,940	1.79	46.2	53.8	$45,060	.08	.07	1.0	15.2	83.6
Unincorporated MC Tract 610.06	8,067	2,749	2.93	59.1	40.9	$46,210	28.9	11.1	30.0	23.2	6.7
Unincorporated MC Tract 610.07	4,392	1,549	2.84	51.7	48.3	$50,716	27.6	11.3	37.7	17.7	5.7
Surprise Census Tract 610.08	2,021	726	2.78	50.1	49.9	$49,005	30.1	10.5	39.9	15.2	4.3
Surprise Census Tract 405.10	5,560	2,985	1.86	39.8	60.2	$54,122	0.1	0.4	1.1	48.1	50.2
Surprise Census Tract 405.11	2,557	1,352	1.89	43.3	56.7	$37,917	1.1	0.4	2.2	39.1	57.3

Ethnic Composition[a]

	Hispanic Origin	White Not Hispanic	Black Not Hispanic	Native American Not Hispanic	Asian Not Hispanic	Other Not Hispanic	Percent Minority
Maricopa County	24.8	66.2	3.7	1.8	2.2	1.3	33.8
City of Goodyear	20.8	70.0	5.0	0.9	1.7	1.6	30.2
City of Glendale	24.8	64.7	4.5	1.1	2.7	2.2	35.3
City of Surprise	23.3	71.8	2.4	0.3	1.0	1.2	28.2
Goodyear Census Tract 610.04	22.7	69.8	4.4	0.4	0.7	2.0	30.1
Goodyear Census Tract 610.05	18.2	72.0	7.1	1.8	0.6	0.3	29.7
Goodyear Census Tract 610.09	23.0	77.0	0.0	0.0	0.0	0.0	24.0
Unincorporated MC Tract 05.05	0.5	98.4	0.5	0.05	0.3	0.2	1.6
Unincorporated MC Tract 610.06	25.6	67.7	2.1	0.7	1.9	2.3	32.6
Unincorporated MC Tract 610.07	20.4	71.5	3.5	0.4	1.8	2.4	28.5
Surprise Census Tract 610.08	13.9	79.1	3.2	0.5	1.2	2.1	21.0
Surprise Census Tract 405.10	0.7	97.1	0.7	0.2	0.7	0.6	3.0
Surprise Census Tract 405.11	0.8	98.0	0.4	0.2	0.2	0.4	5.7

Source: U.S. Census, 2000

[a] Number represents percentage of total population

[b] Department of Health and Human Services poverty guideline = $18,400 for a family of four

Minority Considerations

"Title VI of the Civil Rights Act of 1964" and related statutes assure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, and disability. In addition, Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by the President on February 11, 1994, requires federal agencies to identify and address as appropriate, disproportionately high and adverse effects on minority and low-income populations. The Environmental Assessment will contain an evaluation of impacts to minority groups. Based on the census information, a defined minority group is present in the corridor. The higher-than-average percentage of individuals over 65 years of age is expected in retirement communities. At this stage in the project development, no acquisition or relocation of elderly populations is expected. Impacts typical to freeway projects including air quality and noise impacts would occur throughout the project. Design options to mitigate those impacts are being incorporated into the project.

8.4 ECONOMICS

This section describes the businesses in the area, the growth and development of the area, and employment. The project area is a mixed-use corridor of land adjacent to the proposed SR 303L freeway. This linear corridor falls within the cities of Surprise, Glendale, Goodyear, and portions of unincorporated Maricopa County. The cities of Surprise and Goodyear are experiencing explosive growth in their residential and commercial sectors. According to the Department of Economic Security, Surprise was the fastest growing city in Arizona in 2003. The City of Glendale has strip annexed the portion of the corridor between Camelback Road and Peoria Avenue and is in the process of annexing some whole parcels that are proposed for development in the next year or so.

Economic Base

The economy of the project area is predominately agricultural based with continued increases in construction and development of residential property in the area. The unincorporated areas of Maricopa County in the area of the proposed project are dominated by agricultural use.

There are several businesses located within ½ mile of the project area. These businesses include an RV storage, fence supply, Albertsons Grocery and gas station, Osco Drug, Prado Kennel, Wildlife World Zoo, Cotton Lane RV and Mobile Home Resort, and Tanita Farms Market. Tanita Farms is physically located in the SR 303L right-of-way and operates on a lease back agreement from ADOT. Several other farms including Cotton Lane Ranch, Green Farms, Cactus Lane Ranch, and Miedema Produce Inc. farm on either side of SR 303L.

Employment

The major employers in the region (within 3 miles) include; the Phoenix-Goodyear Airport Campus, Lockheed Martin, Lufthansa, Del Monte Fresh Produce, Poore Brothers, Snyder's of Hanover, McLane Southwest, Arizona State Prison (Perryville), retailers, and Luke AFB. Luke AFB is a major national defense installation with about 8,600 military and civilian employees and is a major economic contributor to the entire Phoenix Metropolitan Area.

Growth and Development

Surprise, Arizona is experiencing rapid growth that has translated into considerable residential development adjacent to the project area. There are five subdivisions, Northwest Ranch, Bell West Ranch, Surprise Farms, Sierra Montana, and Sun City Grand that are developed or developing along the northern portion of the project area. Much of the land adjacent to the SR 303L corridor and some of the major one-mile cross streets are zoned for commercial development. New businesses have recently opened at the corner of SR 303L and Bell Road. A new Osco Drug and Albertsons shopping center was completed on the northwest corner of the intersection. The Surprise General Plan adopted in 2001 includes SR 303L as an important component to the city's transportation network. The General Plan envisions SR 303L as an employment and commercial corridor supportive of higher density residential. SR 303L is classified in the Surprise General Plan as a principal arterial that will be able to sufficiently carry approximately 100,000 vpd, in the city's fastest growing area. The principal arterial classification is not consistent with the MCDOT SR 303L classification as a Rural Major Freeway, although the traffic volumes identified in the General Plan are consistent with a freeway.

There is a study by the U.S. Department of Commerce looking at the need and feasibility of implementing a farmland preservation zone for lands adjacent to the middle section of the SR 303L corridor. These lands are predominately used for agricultural purposes and because they are within the Luke AFB noise contour zone and accident potential zone they may be able to provide the necessary buffer for continued military aircraft operations into the future. Such zoning would prevent the development of these lands for increased residential use.

Goodyear, Arizona, is also experiencing rapid growth in the residential and commercial sectors. The Goodyear General Plan envisions the city center to shift west toward Cotton Lane and the potential SR 303L south of I-10. Single and multi-family residential development is occurring in the vicinity of and south of I-10. The lands east of the SR 303L roadway north of Thomas Road are owned by Robson Development Company and are slated for additional phases of PebbleCreek Retirement Community. Canyon Trails Ranch south of I-10 is developing as are subdivisions just west of Cotton Lane.

Impacts on Economic Sectors

The proposed project would require 1,460.5 total acres of right-of-way, of which approximately 501 have been dedicated, acquired, or otherwise preserved for the roadway project.

Some of the existing right-of-way is being farmed on lease-back agreements. Implementation of the proposed project would remove this agricultural land from production. The land needed is a minimal portion of the roughly 19,900 acres of agricultural land within the project area, resulting in a very minor impact on the regional farming industry. The conversion to residential use has a much greater impact on farming operations. Preliminary design indicates two businesses at US 60 and SR 303L, an RV storage facility and a fence supply business, would lose access to US 60 and thus have to be acquired or relocated.

Business within the project area and those adjacent to the proposed project corridor would likely be affected temporarily by the inconvenience of freeway construction, including noise and detours. Positive impacts would result from the freeway's completion with better business exposure and increased access for the traveling public.

In the long-term, transportation investments can provide economic benefits by reducing the cost of transportation for businesses and by expanding the accessibility of firms to suppliers, labor, and consumer markets.

8.5 HAZARDOUS MATERIALS

A Preliminary Initial Site Assessment and database search were conducted for the project area to determine the potential for the presence of environmental contamination from hazardous substances due to previous or existing land use activities.

The process has revealed a number of potential low or moderate risk sites located adjacent to or within one-mile of the project corridor. Few high-risk sites that may warrant additional environmental investigation were detected. A high-risk determination is due to the type of business operations formerly or currently performed at the site, aboveground and underground storage tanks, businesses that use or produce a regulated toxic material at the site, or have a violation listed in an environmental database. Further investigation prior to any right-of way acquisition would be prudent at two sites were recommended.

Although 22 irrigation well sites were identified in the area, they do not pose a large-scale environmental contamination risk. Many irrigation well sites exhibit mild to moderate staining around pumps from lubrication oil overspill. This staining is localized and typically is present on the concrete pump pad and possibly on surrounding bare soil. This type of surface staining typically does not constitute a Recognized Environmental Condition as defined by ASTM 1527-00, since the staining is usually of low volume and is not very mobile in subsurface media. In general agricultural lands represent a low to moderate risk. No signs of pesticide or herbicide storage is evident in the corridor.

8.6 AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) intended to protect public health and welfare. As required by the Clean Air Act Amendments of 1990 (CAAA), National Ambient Air Quality Standards (NAAQS) have been established for the following major air pollutants: carbon monoxide (CO), nitrogen dioxides (NO_2), ozone (O_3), particular matter (PM_{10}), sulfur dioxide (SOx), and lead (Pb). The EPA has established standards for the major pollutants which have been adopted by the State of Arizona. The "primary" standards have been established to protect the public health, and "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare. CO "primary" standards are 9 parts per million (ppm) for the 8-hour average and 35 ppm for a 1-hour average. No "secondary" standards have been developed for CO by EPA.

Section 107 of the CAAA requires the EPA to publish a list of geographic areas that are not in compliance with the NAAQS. Areas not in compliance with the NAAQS are called nonattainment areas. The designation of an area is made on a pollutant-by-pollutant basis. The proposed project area is classified as a nonattainment area for O_3 and PM_{10}. The project area falls within the designated maintenance area for CO. In general, air quality in the area around SR 303L can be characterized as good for O_3 and CO due to relatively moderate traffic volumes and lack of major industrial sources. Maricopa County has an air quality monitoring site for O_3 near the north end of the project area in Surprise at Bell and Dysart Roads. PM_{10} may be characterized as moderate to high in the area due to extensive agricultural operations in the vicinity.

Air quality modeling was conducted for the SR 303L traffic corridor using CAL3QHC, Version 2.0, the EPA-approved model for assessing air quality impacts associated with transportation projects. The model considers free-flow and idling emissions in conjunction with intersection geometry, wind direction, and other meteorological factors. The model is used to estimate peak 1-hour and 8-hour carbon monoxide concentrations near selected intersections under 2004 Existing Conditions, 2030 No-Build Conditions, and 2030 With-Project Conditions. Intersections to be modeled include SR 303/Indian School Road, SR 303/Northern Avenue, and SR 303/Bell Road, SR 303L /I-10, and SR 303L/US 60.

During project construction, some localized deterioration of air quality can be expected due to the operation of construction equipment combined with the slower traffic speeds that are associated with a construction zone. The construction impacts on air quality will be a localized condition that will be discontinued when the project is completed.

Although construction emissions would be temporary, they may be substantial if proper controls are not implemented and monitored during construction. A mitigation program will be designed to comply with the requirements of Maricopa County Rule 310 Open Fugitive Dust Sources and filed with the County prior to construction. Rule 310 requires the preparation and submission of an Earth Moving Permit application and a fugitive dust control plan. The fugitive dust control plan would list all best available control measures to be implemented at the work site and, when filed under Rule 310 requirements, would enable Maricopa County to perform on-site inspections to ensure compliance with its measures. Dust would be controlled in accordance with Section 207 (Dust Palliative) of the ADOT Standard Specifications for Road and Bridge Construction (2000).

8.7 NOISE IMPACT

Sound, or noise, is the term given to variations in air pressure that are capable of being detected by the human ear. Small fluctuations in atmospheric pressure (sound pressure) constitute the physical property measured with a sound pressure level meter. Because the human ear can detect variations in atmospheric pressure over such a large range of magnitudes, sound pressure is expressed on a logarithmic scale in units called decibels (dB). Noise is defined as “unwanted” sound.

To address the preferential response of humans to frequency, the A-weighted scale was developed. The A-weighted scale adjusts the sound level in each frequency band in much the same manner that the human auditory system does. Thus the A-weighted sound level (read as “dBA”) becomes a single number that defines the level of a sound and has some correlation with the sensitivity of the human ear to that sound.

The Equivalent Sound Level (L_{eq}) is a type of average that represents the steady level, when integrated over a time period, would produce the same energy as the actual signal. The actual instantaneous noise levels typically fluctuate above and below the measured L_{eq} during the measurement period. The A-weighted L_{eq} is a common index for measuring environmental noise.

FHWA and ADOT assess roadway noise levels in terms of a one-hour A-weighted L_{eq}. The FHWA design guideline is used to determine when noise mitigation measures (such as noise walls) are appropriate to reduce the noise radiating from a highway to residences. The FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise (Title 23, Code of Federal Regulations [CFR], 772.5 (g)) states that a *traffic noise impact* occurs when the predicted traffic noise levels approach or exceed the sound levels shown in Table 8-2 or when the predicted traffic noise levels substantially exceed the existing noise levels.

Table 8-2 Noise Abatement Criteria
Hourly A-Weighted Sound Level (dBA)

Activity Category	L_{eq} (h)	L10 (h)	Description of Activity Category
A	57 (Exterior)	60 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of the area is to continue to serve its intended purpose.
B	67 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	–	–	Undeveloped lands.
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

Notes: L_{eq} (h) is the one-hour energy equivalent sound level.
The interior noise levels (activity) apply to: (1) Indoor activities for those parcels where no exterior noise-sensitive land use or activity is identified, and (2) Those situations where the exterior activities are either remote from the highway or shielded in some manner so that the exterior activities will not be affected by the noise, but the interior activities will be affected.
Source: 23 CFR 772

ADOT’s *Noise Abatement Policy for Federal Aid Projects* (March 21, 2000) defines “approach” as three decibel below the FHWA design guidelines and “substantially exceeding the existing noise levels” as an increase of 15 dBA or more above the existing noise levels. In assessing the mitigation requirements along the SR 303L project, an hourly L_{eq} maximum of 64 dBA was used, as well as a 15 dBA increase in the hourly L_{eq}, to determine if a noise “impact” occurs that requires mitigation to be considered.

FHWA and ADOT guidelines indicate that abatement should be considered if either of the criteria described above are exceeded; however, the abatement measures must be reasonable, feasible, and desired by the affected individuals. Feasibility deals primarily with engineering considerations (e.g., can a barrier be built given the topography of the location; can a substantial noise reduction be achieved given certain access, drainage, safety, or maintenance requirements; are other noise sources present in the area, etc.). According to ADOT, reasonableness criteria shall include, but not be limited to: amount of noise reduction provided, cost of abatement, views of impacted residents, barrier height limitations, and aesthetic value.

Existing Noise Levels

Existing ambient noise level readings were taken at 143 representative, noise-sensitive locations (residences) in the vicinity of the project.

Existing, future Build Alternative, and the future No Build Alternative noise levels have been predicted using the FHWA-approved highway noise prediction computer model TNM 2.5. To determine the noise produced by each roadway section, the model requires traffic volume, speeds, and propagation adjustments. TNM contains three standard vehicle types: cars, medium trucks, and heavy trucks. Standard noise emission levels and source heights are included with TNM for these three vehicle categories. Predicted noise level contours are shown in Appendix D.

The SR 303L corridor concepts and traffic interchange alternatives have been analyzed in accordance with *ADOT's Noise Abatement Policy for Federal Aid Projects* (ADOT 2005), and FHWA's *Procedures for the Abatement of Highway Traffic and Construction Noise* (23 CFR 772). Existing noise conditions will be compared with Build Alternative predictions for the year 2030. The results of the noise analysis will be compared to the FHWA Noise Abatement Criteria and to ADOT's *Noise Abatement Criteria* to determine where impacts are anticipated and what mitigation should be considered. The noise analysis process includes a follow-up analysis at final design to confirm or modify abatement measures as needed. This is due to potential changes in conditions (traffic, development) and the more definitive design data available at final design.

8.8 VISUAL QUALITY

This section identifies the visual character within the project area. This section also discusses the characterization of the natural and man-made visual elements that have created the visual setting within the project area.

The project area is located in an area of relatively flat terrain with a few disperse areas consisting of sloping contours. The existing SR 303L corridor is characterized primarily by agricultural fields and open space. Newly developed and developing single-family residential parcels are located primarily in the northern and southern portions of the corridor.

Generally throughout the study area, the existing viewshed from the corridor includes distant background views of mountains. Included are the Hieroglyphic Mountains located to the north, the White Tank Mountains to the west, and the Estrella Mountains to the south. Mid- and short-range views represent a highly modified landscape due to agriculture and residential development; limited natural undisturbed vegetation exists within the project area. Mid-range views incorporate dispersed rural residential development, vacant land, and agricultural fields and orchards through much of the study area, with medium- to high-density residential developments in the northern area of the project. Short-range views are consistent with the mid-range views and include introduced trees and grasses bordering the parcels in the southern end of the project and community perimeter walls and residences in the northern portion. Views seen by the public traveling on the SR 303L along the northern end of the project area include major overhead power lines that run perpendicular (northeast to southwest) to SR 303L.

Residential areas are generally considered highly sensitivity viewing areas, and travel routes such as the SR 303L are considered moderate to high. For the purposes of this study, impacts were evaluated for existing residential areas in the project area as well as for the public traveling along SR 303L. The proposed ADMP drainage features are generally not perceived as impacts to the view shed as the features will be at or below grade. The outfall channel would be within the context of the freeway corridor and detention basins are typically landscaped around the outer edges.

It is anticipated that some neighborhoods in the vicinity of the proposed interchanges will have view-shed impacts. The proposed traffic interchanges at US 60 and I-10 have multiple levels and structures. The tallest planned structure will be the I-10 interchange, which extends 75 feet above ground level. It is anticipated that landscaping would be a standard component of the proposed freeway design. Additionally, bridge structures on the ADOT system typically receive some aesthetic treatment. The Canyon Trails subdivision at I-10 and Cotton Lane would experience the greatest visual impact due to proximity to the SR 303L/I-10 system interchange. The design of the SR 303L/US 60 traffic interchange calls for no additional levels above the existing bridge, thus views in the Sun City West and Sun City Grand vicinity would not substantially change.

8.9 WATER RESOURCES

This section on water resources primarily refers to those issues relating to surface water drainage, wetlands, groundwater, water quality, and flood plains.

The project area is within the Agua Fria River and Gila River watershed. The Agua Fria River essentially runs parallel to the SR 303L corridor, but is approximately 6 to 7 miles to the east of the project area. The Gila River is situated at the south end of the project. Drainage intercepted by SR 303L will be directed to the Gila River via an outfall channel to be constructed on the west side of SR 303L. The historic surface water drainage patterns in the project area have been altered and in many cases rerouted as a result of land leveling for agricultural irrigation, the construction of irrigation canals and dry land dams. These dams built by ACOE were designed to control flooding in the metropolitan Phoenix area. The McMicken dam is one of such structures located a few miles to the west of the project area. Due mostly to the existing land use in the project area and flood control measures, there are no surface water drainages in the project area and no areas exhibit the characteristics of a federally defined wetland.

Water Quality

The Clean Water Act (CWA) is designed to protect the nation's surface waters from pollution and degradation. Section 401 of the CWA pertains to maintenance and improvement (water quality) of surface waters designated as waters of the United States. The Gila River is the only natural drainage feature in the project area that would be classified as a water of the United States. Section 401 certification may be needed as a component of a Section 404 permit. Design of the outfall channel at the river is not sufficiently developed as to whether constructions will occur with the ACOE jurisdictional area.

Section 402 of the CWA pertains to the maintenance of water quality by managing storm water run-off from projects impacting greater than 5 acres. Since the proposed project would impact over 1,000 acres, the construction of the project will be subject to the provisions of Section 402 and an Arizona Pollution Discharge Elimination System (AZPDES) permit would to be obtained from ADEQ for the proposed project. Permitting requires that the project proponent completes a Storm Water Pollution Prevention Plan (SWPPP) for the construction phases and that the overall project design provide for the protection of waters of the United States. These plans require the implementation of best management practices used to prevent construction waste from entering the nation's waterways via surface water runoff. The SWPPP must incorporate temporary control measures during construction, permanent control measures when the project is completed, and best management practices for the control and prevention of release of non-storm water discharges.

Flooding

Under Title 42 of the US Code, the Federal Emergency Management Agency (FEMA) is granted the authority to manage the identification of floodplains within the United States. Floodplains are generally identified by area of 100 year and 500-year flood event inundation. FEMA publishes maps depicting the locations of 100-year and 500-year floodplains. The project area is situated within FEMA Map 04013 in Community Panels 1145, 1585, 1595, and 2060.

Much of the project area is within the 500-year flood zone of the Agua Fria River. While there are large areas designated as 100-year flood zones adjacent to the project site boundaries, there are two areas of 100-year flood zone within the project area boundaries. One area is where SR 303L connects with I-10 (see Figure 8-1). The RID Canal and I-10 impounds sheet flow from the north and retains the waters in several large basins immediately north of the freeway. The second floodplain is at the Gila River. The proposed drainage outfall channel would intersect the northern portion of the Gila River floodplain.

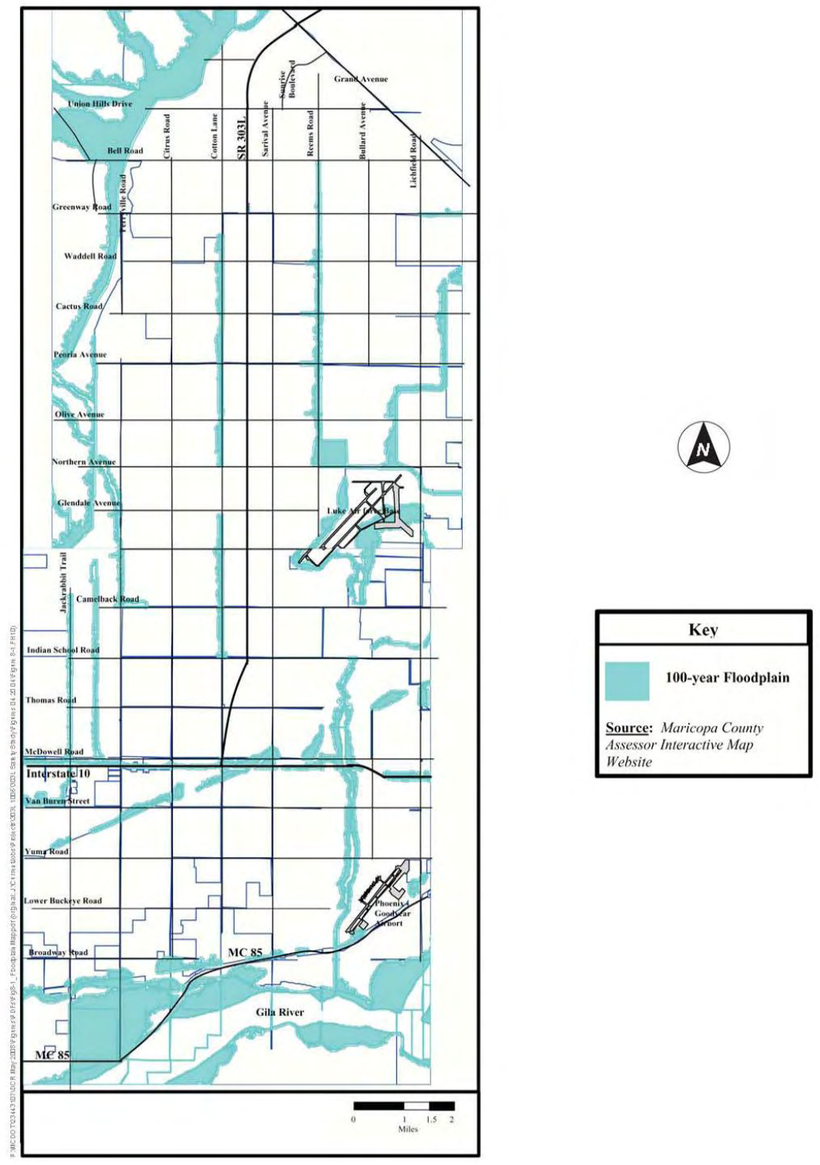

Figure 8-1 SR 303L Floodplain Map

FCDMC administers the floodplain permit program on behalf of FEMA Permits are required when a project changes the floodplain or is situated within the 100-year flood zone of an existing floodplain. The proposed SR 303L/I-10 Traffic Interchange would cross the 100-year flood zone and will require analysis to determine if any impacts would occur.

Groundwater

The project area is within the Phoenix Active Management Area where water conservation measures are encouraged. The Phoenix Active Management Area Second Management Plan requires use of low-water-use (water conserving) plants in landscaping of public right-of-way. The landscaping plan for this proposed project would be reviewed with Arizona Department of Water Resources staff to ensure that appropriate vegetative species are used.

No principal or sole-source aquifer, as designated under Section 1424(e) of the Safe Drinking Water Act, exists in the vicinity of the proposed project. In addition, no wellhead protection areas, as authorized by the 1986 Amendments to the Safe Drinking Water Act, are in the project area. Therefore, no sole-source aquifers or wellhead protection areas would be affected by the proposed project.

Water Resource Impacts

The potential for adverse impacts to water resources is limited. There are no anticipated impacts to surface water drainages, wetlands, or groundwater. There is the potential for surface water run-off water quality to be affected by construction of the proposed roadway and drainage outfall channel, but the regulatory requirements and necessary water quality permits will most likely prevent any adverse impacts to water quality. The proposed project itself would result is some increased surface water run-off due to the expanded area of paved surfaces. The contribution of increased storm water run-off volumes is expected to be minor, and with the incorporation of best management practices and storm drain management storm water runoff is not expected to result in any localized or regional flooding.

8.10 BIOTIC COMMUNITIES

The project area is located within the Sonoran Desert. Species typical of Sonoran Desert scrub habitat can be found in the project vicinity where urbanization or agriculture has yet to occur. Due to the predominate agricultural and urban nature of the project study area, the majority of the project study area contains little native vegetation and does not truly represent Sonoran Desert scrub habitat.

Typical native plant species of the area include: Creosote bush (*Larea tridentata*), triangle-leaf bursage (*Ambrosia deltoidea*), foothill paloverde (*Cercidium microphyllum*), and honey mesquite (*Prosopis juliflora*). Several species of cactus are found, predominantly cholla (*Opuntia* sp.) and prickly pear (*Opuntia* sp.). Isolated, small remnants of native vegetation may be found in the project vicinity, but not within the proposed project right-of-way. Remnants of native vegetation have lost much of their habitat value due to isolation and gradual changes in species composition that come with urbanization. No Arizona native plants protected by the Arizona Native Plant Law are found in the right-of-way, and none would be affected by the proposed action.

Wildlife

Wildlife that may occur in the project area is separated into two categories: common and transient. Since much of the area is agricultural, the most commonly seen species are mourning and white-winged dove (*Zenaida macroura and asiatica*), American kestrel (*Falco sparverius*) red-tailed hawks (*Buteo jamaicensis*), Harris' hawks (*Parabuteo unicinctus*), and turkey vultures (*Cathartes aura*). The open fields provide food and shelter for many small mammals that provide foraging opportunities for the raptors. Typical of the small mammals are mice (*Peromyscus* sp.), whitethroat woodrat (*Neotoma albigula*), and blacktail jackrabbit (*Lepus californicus*). Common reptiles and amphibians that may occur in the project area include various garter snakes (*Thamnophis* sp.), side-bloched lizards (*Uta stansburiana*), and bullfrogs (*Rana catesbieana*).

Transient species that may be observed in the project area are striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), and mule deer (*Odocoileus hemionus*). The White Tank Mountains comprise a large expanse of natural undisturbed Sonoran desert located approximately 5 miles to the west of the project area. It is possible that these species may be observed from time to time in the area.

Endangered Species

The potential for the project to affect federally listed threatened and endangered species was examined by a qualified biologist as required by the Endangered Species Act. The United States Fish and Wildlife Service Maricopa County list (USFWS 2005) of threatened or endangered species and species proposed for listing was reviewed for species that may occur in the project area. A Draft Biological Evaluation (DMJM Harris 2005) was prepared to identify biological resources and potential impacts from the proposed SR 303L and related drainage system.

The roadway elements of the project do not cross or impact any natural or critical habitats. The ADMP outfall channel terminates at the Gila River where several threatened or endangered species are potentially present. Four species are being evaluated for potential impacts; Cactus ferruginous pygmy owl, California Brown pelican, Southwestern willow flycatcher, yellow-billed cuckoo, and Yuma clapper rail. No critical habitat appears to be present in the vicinity of the project; however, Arizona Game and Fish Department

records document the species as occurring within a 3-mile buffer. The Biological Evaluation concluded no effect on the protected species.

The Arizona Game and Fish Department records (Heritage Data Management System) documented the occurrence of the lowland leopard frog (*Rana yavapaiensis*) within the project vicinity. The lowland leopard frog is listed as a wildlife species of special concern in Arizona. The absence of natural drainages and perennial surface water within the project area would naturally limit the habitat for these amphibians. The presence of irrigation ditches and drains does offer waterways that could provide access from other natural waterways (Agua Fria River) into forage areas within the vicinity of the proposed project.

Invasive Species

Executive Order 13112 entitled Invasive Species was signed on February 3, 1999, to require Federal agencies whose actions may affect the status of invasive species:

> "(i) to prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; (vi) promote public education on invasive species and the means to address them; and (3) not authorize, fund or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States …"

In compliance with Executive Order 13112, when applicable, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction would be seeded using species native to the project area, all earth-moving and hauling equipment would be washed at the contractor's storage facility prior to entering the construction site, and all earth-moving and hauling equipment would be washed at a designated location prior to leaving the construction site.

Most of the project area has been disturbed and most of the soils are continually disturbed by farming and vehicular use. These conditions promote the succession of disturbance indicator species (weeds and annual grasses).

Biotic Community Impacts

It cannot be determined at this time whether or not any invasive species occur within the project area because no surveys were completed within the last growing season. At the appropriate time, the corridor will be surveyed for invasive species. During construction, all precautions mentioned above would be implemented to protect against the introduction and/or spread of invasive species.

8.11 CULTURAL RESOURCES

The SR 303L corridor has been subject to numerous cultural resource inventories and surveys over the years. The entire SR 303L corridor from US 60 to I-10 was surveyed in 1989 by ADOT prior to construction of the existing interim highway. Subsequent surveys of cross streets have been conducted by MCDOT. The only remaining area within the project area unsurveyed is south of I-10 to the Gila River. MCDOT is currently surveying that area for cultural resources.

The following cultural resource reports document the previous surveys and identify any cultural resource sites found:

- ADOT 1989 – Archaeological Survey of the Estrella Freeway Interim Roadway (Loop 303) in Metropolitan Phoenix, Arizona, Scientific Archaeological Services.
- MCDOT 1999 – A Cultural resources Survey of 180 Acres, Thomas Road to I-10, Cotton Lane/Loop 303, in Goodyear, Maricopa County Arizona, Soil Systems, Inc.
- MCDOT 2001 – Cultural resources Survey of the Indian School Road, Northern Avenue and Olive Avenue Intersections with the Loop 303 Expressway, Maricopa County, Arizona, URS corporation.
- MCDOT 2001 – A Class I Cultural Resource Inventory of the State Route 303 Loop corridor from I-10 to US 93 in Maricopa County, Arizona, Entranco, Inc.
- MCDOT 2002 – Cultural Resources Survey of Ten Intersections Along the Loop 303 Expressway, Maricopa County, Arizona, URS Corporation.
- FCDMC 2003 – Data Collector Report, Loop 303/White Tanks Area Drainage Master Plan Update – Cultural Resource Assessment and Historic/Prehistoric Themes, URS Corporation.
- MCDOT 2004 – A Class I Cultural Resources Inventory of Approximately 10.75 Miles for the State Route 303 Loop Corridor in Maricopa County, Arizona, Carter Burgess.

These following reports document several historic features that are crossed by SR 303L and the planned outfall channel or in near proximity to the project area. Sites that are on the National Register of Historic Places (NRHP) or that appear to be eligible include:

- US 60, US 89, SR 93 and US 70 – The modern day US 60 has been in place since 1927 and has had several designations within the state and federal highway system over the years. The historic roadways are eligible as a NRHP.
- Santa Fe–Prescott-Phoenix Railway – The modern day Burlington Northern Santa Fe Railroad parallels US 60 throughout the project area. This railroad was originally constructed in 1895. The railroad is recommended as eligible to the NRHP.
- RID Canal – The current RID Canal crosses I-10 and Cotton Lane in Goodyear. Built in 1929, the canal has been recommended for inclusion on the NRHP.

Several smaller recorded sites ranging from lithic scatters, trash mounds, and concrete foundations are found outside an area of potential effect. MCDOT will coordinate with the State Historic Preservation Office (SHPO) and local tribes to determine if any additional survey or testing in required. A determination of effect on any sites will be made through Section 106 of the Historic Preservation Act.

Research Results

Thirty surveys were previously conducted within the SR 303L project corridor and its vicinity. Three prehistoric and nine historic cultural resource sites were recorded.

AZ CC:2:174 (ASM) is the historic alignment of US 70. This historic highway was built in 1927 and spanned from North Carolina to Los Angeles, California. Within the project area, AZ CC:2:174 follows the alignment of US 60. AZ CC:2:174 in its entirety has been recommended as being eligible for inclusion in the NRHP; but, the portion within the project area has not been formally evaluated to determine whether it contributes to the greater historic property.

AZ FF:9:17 (ASM) is the historic alignment of US 80, a highway that ran from New Mexico to Yuma. US 80 crosses through the project area generally on current US 60 alignment. AZ FF:9:17 (ASM) in its entirety has been recommended for eligibility for inclusion in the NRHP. It has not however, been determined whether or not the segment that is within the project area contributes to the historic highway as a whole.

AZ I:3:10 (ASM) is the historic alignment of US 89. This highway had a generally north-south alignment through Arizona that extended from Nogales to Flagstaff and beyond, connecting several national parks in the western United States. AZ I:3:10 follows the alignment of US 60 in the project area. AZ I:3:10 in its entirety has been recommended as being eligible for inclusion in the NRHP; but, the portion within the project area has not been formally evaluated to determine whether it contributes to the greater historic property.

AZ U:13:248 (ASM) is the historic alignment of SR 93. SR 93 extended from Kingman to Nogales. In the project area, it is currently US 60. AZ U:13:248 (ASM) in its entirety has been recommended as being eligible for inclusion in the NRHP; but, the portion within the project area has not been formally evaluated to determine whether it contributes to the greater historic property.

AZ V:2:101 (ASM) is the historic alignment of US 60. It was built in 1927 and expanded from New Mexico to California. It is currently in use, and is located in Sections 18-20, T4N, R1W, and Section 13, T4N, R2W. AZ V:2:101 (ASM) in its entirety has been recommended as being eligible for inclusion in the NRHP; but, the portion within the project area has not been formally evaluated to determine whether it contributes to the greater historic property.

AZ N:3:32 (ASM) is the historic alignment of the Santa Fe, Prescott, and Phoenix Railway Line. It connected Ash Fork to Phoenix (a segment that was completed in 1895). The railway was later owned by the Atchison, Topeka, & Santa Fe Railway Co. It crosses the project area in Sections18-20, T4N, R1W and Sections 13, T4N, R2W. AZ N:3:32 (ASM) in its entirety has been recommended as being eligible for inclusion in the NRHP; but, the portion within the project area has not been formally evaluated to determine whether it contributes to the greater historic property.

AZ T:10:83 (ASM) is the historic RID Canal. The canal was built around 1929 and is currently used for irrigational purposes. It is located in Sections 1 and 2, T1N, R2W of the project area. AZ T:10:83 (ASM) in its entirety has been recommended as being eligible for inclusion in the NRHP; but, the portion within the project area has not been formally evaluated to determine whether it contributes to the greater historic property.

AZ T:7:46 (ASM) was recorded in 1989 and identified as a possible archaic site consisting of a scatter of flaked stone and ground stone artifacts. The surface of the site was entirely collected and one trench was mechanically excavated to determine the potential for subsurface cultural deposits. No additional cultural resources were identified. AZ T:7:46 (ASM) was recommended as not eligible for inclusion in the National Register of Historic Places (NRHP).

AZ T:7:142 (ASM) is located approximately 1,600 feet northwest of the SR 303L corridor. This prehistoric site consists of a scatter of flaked stone, ground stone, a roasting pit, and a possible second roasting pit. This site was recommended as "potentially eligible" for inclusion in the NRHP under Criterion D, for its potential to yield information important to prehistory.

ADOT will coordinate with SHPO to determine if additional survey, testing or data recovery is required.

8.12 SECTION 4(F)/SECTION 6(F) EVALUATION

Section 4(f) of the U.S. Department of Transportation Act of 1966 states that the FHWA "may approve a transportation program or project requiring publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if there is no prudent or feasible alternative to using that land and the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use" (49 U.S.C. 303).

There is one park and recreational facility for a school within 0.25 mile of the corridor. As noted above in the Cultural Resources section, several NRHP eligible properties cross the project corridor. All the features noted are modern-day linear water or transportation corridors. A determination of "use" of the 4(f) properties will be made in the Environmental Assessment. Use is defined by 23 CFR 771.135 as (1) land is permanently incorporated into a transportation facility, (2) there is a temporary occupancy of the land that is adverse, or (3) when there is a constructive use of the land. Constructive use is related to proximity impacts caused by the transportation project.

Section 6(f) of the Land and Water Conservation Act (LWCFA) addresses conversion of public recreation facilities funded by the LWCFA. No Section 6(f) properties are located in the vicinity of the SR 303L corridor.

8.13 PRIME, UNIQUE, AND IMPORTANT FARMLANDS

Throughout the corridor agricultural lands are adjacent to SR 303L. Agricultural crops in the corridor range in type and include cotton, citrus, grapes, corn, melons and flowers (roses). Approximately 19,900 acres of irrigated farmland is located in the 3-mile-wide study area between US 60 and Van Buren Street. Many more thousands of acres of farmland are located outside the study corridor.

To accommodate future construction of the ultimate roadway, additional right-of-way would be required. The acquisition of these parcels would require conversion of existing farmland to transportation right-of-way with both direct and indirect impacts to the existing farmland associated with the conversion.

Since this project may utilize federal funds, compliance with the Farmland Protection Policy Act (FPPA) (7 USC 4202, Rules, 7 CFR Part 658) is required. To comply with the FPPA, a determination must be made as to the existence of prime or unique farmland or farmland of statewide or local importance through coordination with the U.S. Department of Agriculture (USDA). At this time, the USDA has not identified unique soils in the soil survey area that encompasses the proposed project area (personal communication, Rob Wilson, Soil Scientist, USDA Higley, Arizona office). Soils that would constitute prime farmlands have been delineated and recorded in *Soil Survey of Maricopa County, Arizona Central Part*. From review of this soil survey it has been determined that there are soils present on farmable agricultural land in the project area that would constitute prime farmland. These soil types include but are not limited to soils associated with the Antho, Brios, Carrizo, Gilman, Laveen, and Mohall series.

In accordance with the FPPA, processing of USDA form *Farmland Conversion Impact Rating* (AD-1006) is required for all projects utilizing federal funds that will involve the conversion of farmland to a use other than farming. Processing form AD-1006 requires that the acreage of farmland to be converted be calculated and separated into two categories, acres to be converted directly, and acres to be converted indirectly. Site assessment criteria must also be applied to the area of farmland that will be converted as detailed in part 658.5 (b) of the CFR. The Natural Resource Conservation Service (NRCS) determined in May 2005 that prime farmland would be impacted. Upon approval of the Final EA, NRCS form AD-1006 must be completed and returned to NRCS.

8.14 SECONDARY AND CUMULATIVE IMPACTS ASSESSMENT

A Secondary and Cumulative Impacts Assessment (SCIA) will be prepared for the *State Route (SR) Loop 303, Interstate 10 to Grand Avenue Environmental Assessment* in accordance with FHWA and Council on Environmental Quality (CEQ) regulations and guidance documents. The *National Environmental Policy Act* [NEPA (23 CFR 771)] requires that the potential direct, secondary and cumulative impacts of a federally funded project be identified, evaluated, and mitigated as appropriate. Within the context of NEPA, secondary effects are defined by CEQ as impacts that are "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 CFR 1508.8). Cumulative effects are defined as "the impact on the environment foreseeable" (40 CFR 1508.8). Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions …" (40 CFR 1508.7). Logically, if a given project does not directly impact a particular environmental resource, that project would not contribute to a cumulative impact on that resource.

Geographic and Time-Related Boundaries for the SCIA

The White Tank Mountains located approximately 5 miles west of the EA Study Area form the western limit for the SCIA Study Area, while SR 101L forms the eastern limit. The Sierra Estrella Mountains and the Gila River define the southern limit. The Central Arizona Project Canal is identified as the northern SCIA Study Area limit. Generally, the 2030 design year will be used as the minimum projection (although several identified secondary and cumulative impacts extend into longer periods of time). The Draft EA will include a detailed evaluation of Secondary and Cumulative Impacts.